IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Backes Application No.: 10/781191 Filed: 2/18/2004 Title: Program for Adjusting Channel Interference between Devices in a Wireless Network Attorney Docket No.: 160-022	Group Art Unit: 2617 Examiner: Beamer

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APPELLANT'S BRIEF PURSUANT TO 37 C.F.R. § 1.192

This Appellant's brief is hereby submitted in accordance with a Notice of Appeal filed contemporaneously with this Brief.

I. Real Party in Interest

The real party in interest is Autocell Laboratories, Inc.

II. Related Appeals and Interferences

Appellants are not aware of any appeals or interferences that are related to the present case.

III. Status of the Claims

Claims 1-5 are pending in this application. This is an appeal of the decision by the Examiner dated August 3, 2007, finally rejecting all of the pending claims. None of the claims have been allowed. The rejections of claims 1-5 are the subject of this appeal.

IV. Status of Amendments

Claims 1 through 5 were amended in the most recently submitted amendment. That amendment was entered and considered by the Examiner.

V. Summary of Claimed Subject Matter

The subject matter of claims 1-5 is setting the transmission power of a fixed-location device in a wireless network. Common types of fixed location wireless devices include Access Points (in the case of WLANs) and Base Stations (in the case of cellular networks). The fixed-location device provides network access to mobile wireless devices, such as Stations (in the case of WLAN) and

cell phones (in the case of cellular networks). There is some overlap between WLANs and cellular networks, e.g., some cell phones are adapted for use via WLANs, and some laptops, PDAs and other devices can utilize cellular networks. However, from the perspective of a fixed-location device, there are practical differences between transmissions from other fixed location devices and mobile devices. For example, the power level at which a mobile device is received may change over time because mobile devices can be moved. In the absence of power adjustment by the mobile device, the received signal strength (received by a fixed-location device) is a function of distance and intervening obstructions. Consequently, the level of interference created by a mobile device will tend to change as the device is moved. The duration of use of a channel by a mobile device also tends to be shorter than that of a fixed location device. For example, a user might utilize a mobile device for some finite duration communication, following which the mobile device enters a low power mode. In contrast, a nearby fixed-location device does not move away, and will tend to use a channel for an indefinitely long duration of time. It will therefore be appreciated that an interfering fixed-location device can be more problematic than an interfering mobile device, at least from the perspective of another fixed-location device.

The presently claimed invention recites that a fixed location device detects use of a channel by another fixed-location device, and adjusts transmit power to decrease interference with that fixed-location device. Support for the limitations recited in claims 1-5 is in the Specification at page 33, under *2.1.1.3 AP Power Adjustment* as follows:

> Generally, with reference to Figure 17, AP Power adjustment is accomplished as follows: The AP 12 peruses its AP KnownAPs table (step 260). The AP 12 finds the AP in the table with the highest TP Backoff value. The AP 12 then sets its own Max TP backoff value to the highest TP Backoff value (step 262). This Max TP Backoff value, if used as AP 12's TP Backoff value, would reduce the AP 12's transmit power to a level just below the range of the nearest AP operating on the same channel.

Note that the existence and operation of mobile wireless devices, or lack thereof, does not affect the described procedure. Admittedly, situations may occur where it becomes desirable to consider mobile devices in the transmit power determination, but that is not what is described in the above-quoted section and recited in claims 1-5.

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 5,574,982 ("Almgren").

VII. Arguments

A. Almgren fails to teach adjusting transmit power of a first fixed-location wireless device to decrease interference with a second fixed-location wireless device operating on the same channel.

It is well established that "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore*

& Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

The argument advanced by the Examiner in support of the rejection of claim 1 is as follows: (1) Almgren discloses at column 1, lines 13-22 that base stations are determined to be using the same channel as evidenced by interference in call connections; and (2) Almgren discloses at column 4, lines 21-39 that power is regulated in order to reduce interference.

The passage of Almgren at column 1, lines 13-22 states (in full):

> To minimize interference between **communicators** using a radio communication system, the power levels of the radio signals may be regulated. For example, interference between different **call connections** using the same radio channel in a mobile radiotelephone system might be reduced by regulating the transmission power levels of the mobile stations and base stations. The goal would be to ensure that only the transmission power necessary to maintain satisfactory call quality is used so that the likelihood of interference between **calls** using the same radio channel would be reduced. (emphasis added)

Note that the passage does not state that there is interference between base stations, but rather that there is interference between "communicators using a radio communications system," and between "call connections," and between "calls." Almgren describes a cellular network. It is well known in the art that overlap between cells, and thus potential interference between base stations, is handled in the planning stages by strategically locating the base station towers. The placement of an access point in a home or office is seldom done with the same level of expert planning. Further, while a base station tower can only be

moved by being dismantled with heavy equipment, even a small child can pick up and move a wireless access point. Still further, cellular networks utilize regulated spectrum, i.e., the carrier owns the channels and consequently potential interference comes only from the carrier's own network. In contrast, WLANs operate in unregulated spectrum so even if one were to carefully plan placement of access points, a neighbor could install an interfering access point operating on the same channel. These practical distinctions between cell phone networks and WLANs should be taken into consideration when reading the prior art. Contextual evidence of these distinctions is provided by the other paragraphs in the Background of Almgren at columns 1 and 2. Note that each of those paragraphs describe power control between mobile stations and a base station, and none of the paragraphs describe power control between neighboring base stations. Clearly, when viewed in light of the proper context and the practical distinctions between cellular networks and WLANs, the passage cited by the Examiner refers to interference between mobile devices, or between a mobile device and a base station with which the mobile device is not associated. Therefore, the passage cited at column 1, lines 13-22 does not teach that *base stations* are determined to be using the same channel as evidenced by interference in call connections, as asserted by the Examiner.

The passage of Almgren at column 4, lines 21-39 states:

> The system illustrated in FIG. 1 uses a plurality of radio channels for communicating analog information, e.g., speech, and/or digital information, e.g., digitized speech or data. **To minimize interference between transmitting**

> **stations using the same radio channel, it is advantageous to regulate the transmitted power levels as described above**. Using Applicants' power regulation scheme, the appropriate transmission power levels are determined either by the MSC (or, in the Global System for Mobile Communications (GSM), a base station controller (BSC)) in cooperation with the base stations or by the base stations alone. **After receiving a signal from a mobile, the base station measures various parameters associated with the received signal to determine a transmission power order to be sent to the mobile station** as described below. It will be understood that it is usually better for the MSC and/or base stations to control the necessary power regulation tasks, although in principle the mobile stations could also be used. (emphasis added)

Although not specifically stated in the Office Action, the Examiner may have read the statement "to minimize interference between transmitting stations using the same radio channel" as indicating that interference between base stations is being minimized. However, as stated at column 2, lines 54-60, Almgren uses the term "station" to refer to either base stations or mobile stations. Ignoring the context, this ambiguity could lead to the false assumption that Almgren describes reduction of interference between base stations in the cited passage. However, there is no specific teaching anywhere in Almgren as to how or why that would be done, and Almgren repeatedly describes how and why to reduce interference between mobile stations. For example, the description of how to set transmission power later in the same paragraph states "After receiving a signal from a mobile, the base station measures various parameters associated with the received signal to determine a transmission power order to be sent to the mobile station." Note that it is the transmission power of the mobile device that is being set, not the base station in response to a neighboring base station. Note also that it wouldn't make

any sense for a first base station to instruct another base station to adjust power in response to a mobile station. When read in the context of the entire document, and in view of the practical differences between cellular networks and WLANs, it is clear that the above-quoted passage refers only to mobile stations where the term "transmitting stations" is used. In sum, Almgren does not disclose regulating power *of a fixed-location device* in order to reduce interference with *another fixed-location device*.

B. Almgren fails to teach adjusting transmit power of a first fixed-location wireless device in response to a message received from a second fixed-location wireless device operating on the same channel.

Even if Almgren taught what the Examiner asserts in the Response to Arguments at page 2 of the Office Action, those statements do not meet the limitations recited in claims 2 and 3. In other words, even if Almgren did teach that base stations are determined to be using the same channel and that power is regulated in order to reduce interference, there is no teaching that the power of the base station is regulated in response to a message from the other fixed location devices. To the contrary, in the passage cited against claim 2 (already quoted above) and elsewhere, Algren teaches that it is the transmission power of the mobile devices that is regulated in response to signaling. The Examiner apparently equates the "message" recited in the claims with the "signal" described at column 4, lines 24-39 of Almgren. However, Algren explicitly describes that

signal as coming "from a mobile," and the response being sent "to the mobile station." Considering the significant practical differences between base stations and mobile devices in a wireless network, and the context of the cited passage, Almgren fails to teach adjusting transmit power of a first fixed-location wireless device in response to a message received from a second fixed-location wireless device operating on the same channel as recited in claims 2 and 3.

C. Almgren fails to teach that a first fixed-location wireless device transmits a transmission backoff value to a second fixed-location wireless device operating on the same channel to indicate how far the first device has reduced power.

While the Office Action fails to actually discuss claims 4 and 5 in the Claim Rejections section, the backoff value recited in those claims is not taught in Almgren for the same reasons discussed above with regard to the message transmitted between the fixed location devices, i.e., the message in which the backoff value resides.

VIII. Conclusion

Appellants submit therefore that the rejections of the present claims 1-5 under 35 U.S.C. 102(b) as being anticipated by Almgren are improper for at least the reasons set forth above. Appellants accordingly request that the rejections be withdrawn and the case put forward for allowance.

Respectfully submitted,

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Appendix A - Claims

1. (previously presented) A program product for use in a first fixed-location device capable of communicating in a wireless communications environment via a radio frequency channel, the program product comprising a computer readable medium having embodied therein a computer program for storing data, the computer program comprising:

logic for detecting that a second fixed-location device is also using the radio frequency channel; and

logic for adjusting transmit power to decrease interference with the second fixed-location device.

2. (previously presented) The program product of claim 1 wherein the logic for adjusting transmit power does so in response to a message received from the second fixed-location device, the message indicating the power level of the second fixed-location device.

3. (previously presented) A program product for use in a first fixed-location device capable of communicating in a wireless communications environment via a radio frequency channel, the program product comprising a computer readable medium having embodied therein a computer program for storing data, the computer program comprising:

logic for detecting that a second fixed-location device is also using the radio frequency channel;

logic for adjusting transmit power to decrease interference with the second fixed-location device in response to a message received from the second fixed-location device, the message indicating the power level of the second fixed-location device.

4. (previously presented) A program product for use in a first fixed-location device capable of communicating in a wireless communications environment via a radio frequency channel, the program product comprising a computer readable medium having embodied therein a computer program for storing data, the computer program comprising:

logic for maintaining a known devices table, wherein the known devices table includes an entry for each other fixed-location device operating on the radio frequency channel, and wherein for each entry, a backoff value is recorded for each other fixed-location device, the backoff value for each fixed-location device indicative of an amount that the fixed-location device's power has been adjusted;

logic for setting the transmit power of the first fixed-location device to a level equivalent to maximum transmit power minus the maximum of the backoff values recorded for each other fixed-location device.

5. (previously presented) The program product of claim 4 further comprising:

logic for transmitting a backoff value indicative of the amount by which the first fixed-location device has adjusted its power.

Appendix B - Evidence Submitted

None.

Appendix C - Related Proceedings

None.